Tractor Troubleshooting Guide

Commercial Vehicle Systems

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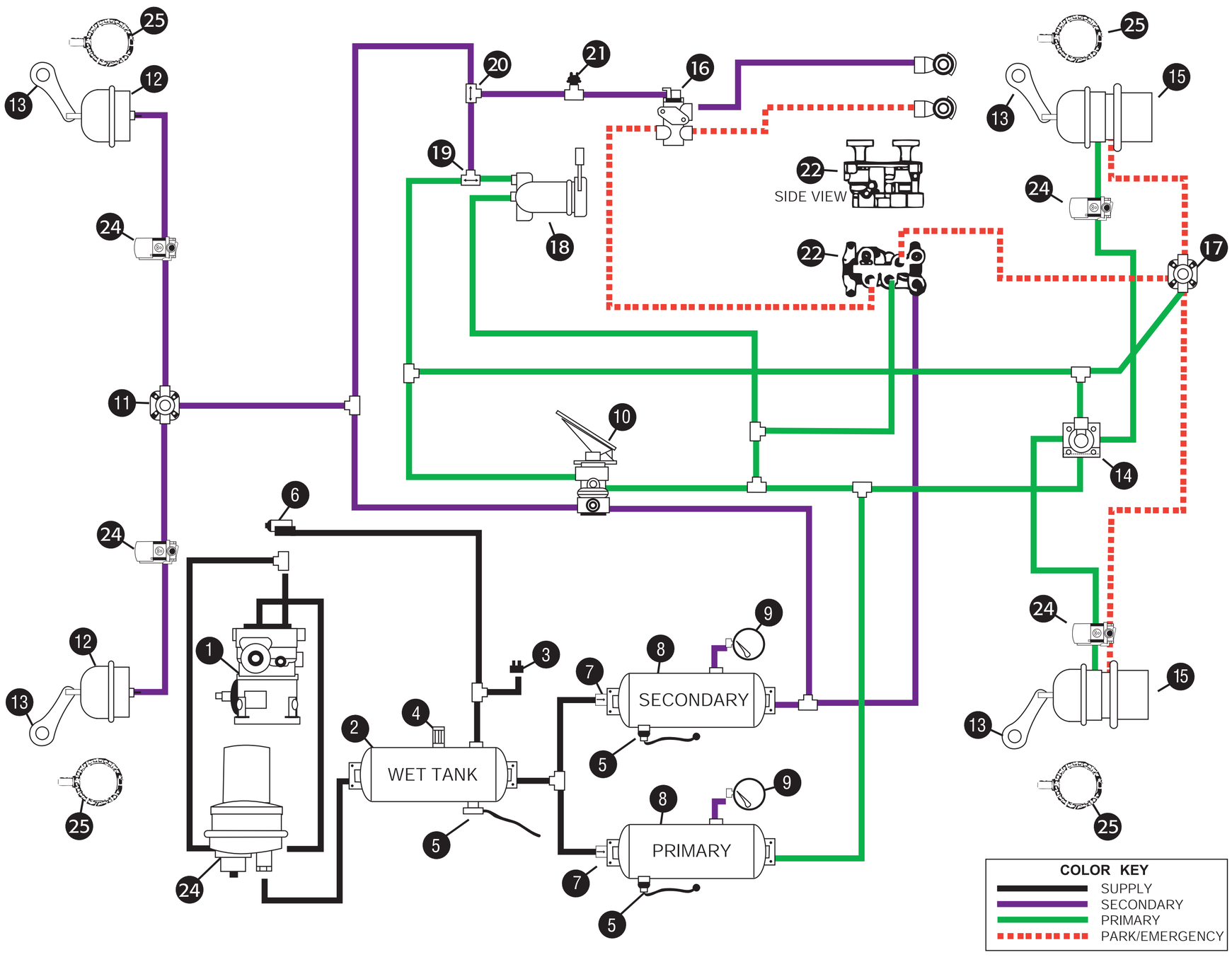


COMPLAINT/REMEDY

1 COMPRESSOR

- PUMPS BEYOND "CUT-OUT"
  - ◆ Check gauge.
  - ◆ Check governor.
  - ◆ Be certain it pressurizes unloader port when above "cut-out".
  - ◆ Check unloader/plungers. Lube, kit or change head.
- WON'T PUMP AIR
  - ◆ Check gauge.
  - ◆ Check compressor drive.
  - ◆ Check inlet valves and plungers. If stuck, leak will be evident at intake when unloaded. Install unloader kit, head kit or head assembly.
- SLOW PRESSURE BUILD-UP
  - ◆ Check gauge.
  - ◆ Check compressor drive.
  - ◆ Check intake for restriction.
  - ◆ Check discharge line for restriction.
  - ◆ Check unloader function. Lube or kit.
  - ◆ Check inlet and exhaust valves. Leak will be evident at intake when unloaded. Kit or exchange head.
- PUMPS EXCESSIVE OIL
  - ◆ Check oil return for restriction, kink or loop.
  - ◆ Check gasket sealant obstructing drain.
  - ◆ Check for undersize return line (1/2" minimum).
  - ◆ Check for fitting restricting drain.
  - ◆ Check for intake vacuum (20" water maximum).
  - ◆ Check for excessive engine crankcase pressure (poor engine ventilation).
  - ◆ Check compressor ring wear. Exchange for service unit.

2 WET TANK

- EXCESS OIL ACCUMULATION
  - ◆ See PUMPS EXCESSIVE OIL (above).
- EXCESS WATER ACCUMULATION
  - ◆ Drain daily. Install automatic drain on wet tank.
- DAMAGED WET TANK
  - ◆ Replace.

3 LOW PRESSURE INDICATOR SWITCH

- BUZZER OR LIGHT INOPERABLE.
  - ◆ Check ground and wiring on switch and buzzer/light.
  - ◆ Replace switch or buzzer/light.
- WON'T OPERATE AT PRESSURES BELOW 60 P.S.I.
  - ◆ Check dash gauge for accuracy.
  - ◆ Replace switch or buzzer/light.

4 SAFETY VALVE

- "POPS" OFF EXCESSIVELY.
  - ◆ Check system pressure.
  - ◆ Valve operating properly in venting at 140/150 P.S.I.
  - ◆ Check unloader/governor.
- "POPS" OFF AT LESS THAN 140 P.S.I.
  - ◆ Replace.
- LEAKS
  - ◆ Replace.
- WON'T FUNCTION
  - ◆ Periodic Test: remove and test above 150 P.S.I. with shop air.
  - ◆ Replace if non-functional.

5 DRAIN VALVES - MANUAL

- LEAKS
  - ◆ Replace.

5 DRAIN VALVES - AUTOMATIC

- WON'T DRAIN
  - ◆ Repair or replace.
- WON'T DRAIN IN COLD WEATHER
  - ◆ Replace with heated unit.
- LEAKS - MALFUNCTIONS
  - ◆ Repair or replace.
  - ◆ Periodic Test: with system pressure stabilized (compressor unloaded) no leak evident at discharge port - make several foot brake applications to reduce wet tank pressure. Moisture should drain from discharge port.

6 GOVERNOR

- FLUTTERS
  - ◆ Check gauge.
  - ◆ Check unloader line size (5/16" x 5' maximum).
  - ◆ Check air actuated accessory. Is the air volume requirement greater than governor capacity?
  - ◆ Check for plugged governor reservoir line.
  - ◆ Repair, adjust or replace governor.
- WON'T PASS AIR TO UNLOADER TO "CUT-OUT" COMPRESSOR
  - ◆ Check governor reservoir line.
  - ◆ Repair or replace.

COMPLAINT/REMEDY

7 SINGLE CHECK VALVE

- ALLOW BLEED BACK TO SUPPLY RESERVOIR
  - ◆ Periodic Test: bleed supply reservoir and observe gauges. Check valves should maintain rear and front reservoir pressure.
  - ◆ Replace it if results are negative.

8 PRIMARY & SECONDARY RESERVOIR

- EXCESS OIL/WATER
  - ◆ Drain as required.
  - ◆ Check automatic drain valve on wet tank for proper operation (See #5).

9 AIR GAUGE

- INCORRECT READING
  - ◆ Calibrate or replace.

10 DUAL SYSTEM FOOT BRAKE VALVE

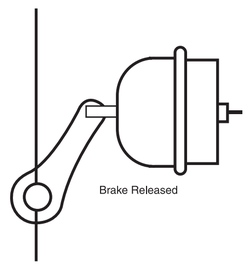
- LEAKS AT EXHAUST WITH ALL BRAKES RELEASED
  - ◆ Check anti-compound double check valve # 18.
  - ◆ Check #17 for back flow into service control line.
  - ◆ Check trailer air system for back flow into tractor's service control line.
- CAUTION: CHOCK WHEELS - Repair and replace items as necessary.
- LEAKS AT EXHAUST WITH HAND VALVE APPLIED
  - ◆ Check double check valve #20 or #21. Repair or replace.
- LEAKS AT EXHAUST WITH FOOT BRAKE APPLIED
  - ◆ Foot valve defective. Repair or replace.
- LEAKS AT EXHAUST WITH ALL PARK BRAKES SET IN PARK POSITION AND FOOT BRAKE RELEASED
  - ◆ Foot valve defective. Repair or replace.

11 QUICK RELEASE VALVE

- LEAKS WHEN SERVICE BRAKES ARE APPLIED
  - ◆ Repair or replace.

12 SERVICE BRAKE CHAMBER

- LEAKS
  - ◆ Replace diaphragm.
  - ◆ Cage park brake.
  - ◆ Reset clamps.
  - ◆ Adjust brakes.
- WITH SERVICE BRAKES APPLIED STROKE IS AT OR BEYOND MAXIMUM LIMIT OF:
  - ◆ Type 9 1 3/8"
  - ◆ Type 12 1 3/8"
  - ◆ Type 16 1 3/4"
  - ◆ Type 20 1 3/4"
  - ◆ Type 24 1 3/4"
  - ◆ Type 30 2"



- SLUGGISH APPLICATION OR RELEASE
  - ◆ Check basic brake.
  - ◆ Check for air line restriction/leak.
  - ◆ Align linkage.
  - ◆ Check chamber return spring.
  - ◆ Check for improper chamber or obstruction.

13 BRAKE ADJUSTER

- SLEEVE WILL NOT DEPRESS
  - ◆ Clean and lubricate or replace with unit dimensionally same.
- ADJUSTING SHAFT WILL NOT TURN
  - ◆ Replace with unit dimensionally same.
- CRACKED HOUSING
  - ◆ Check spring brake anti-compound system.
  - ◆ Check air chamber size. Replace if larger than original size.
  - ◆ Check direction of travel for proper position of hex nut (Shown Under #12).
  - ◆ Hex nut must face away from chamber for uni-directional brake adjuster.
- WORN CLEVIS PIN BUSHING
  - ◆ Replace bushing.

14 RELAY VALVE

- LEAKS AT EXHAUST PORT WITH ALL BRAKES RELEASED
  - ◆ Check seal in spring brake for back flow of spring "hold-off" pressure through service port to open exhaust on valve. Replace #15 Spring Parking Brake.
  - ◆ Check reservoir port for evidence of contamination, check supply lines for rusty fittings or carbon deposits. Repair or replace.
- LEAKS AT EXHAUST PORT WITH SERVICE BRAKES APPLIED
  - ◆ Exhaust valve not seating properly. Repair or replace.

COMPLAINT/REMEDY

15 SPRING PARKING BRAKE (SERVICE ONLY SERVICE CHAMBER SIDE OF SPRING BRAKE)

- PARK BRAKE DRAGS OR WON'T RELEASE
  - ◆ Check for: Improper adjustment, restriction or broken line. Diaphragm failure. System pressure too low. Improper manual release. Broken return spring (spring side). Quick release of relay malfunction. Broken power spring.
  - ◆ Replace entire unit or piggy-back emergency section.
- SLUGGISH PARK APPLICATION
  - ◆ Check for: Diaphragm failure. Improper manual release. Broken power spring.
- LEAKS WHEN PRESSURIZED FOR PARK BRAKE RELEASE
  - ◆ Check for: Ruptured spring side diaphragm. Push rod seal leakage (may be evident at # 14 relay valve).
- SERVICE CHAMBER MALFUNCTION
  - ◆ See #12 service brake chamber.

16 TWO-LINE TRACTOR PROTECTION VALVE (NON-AUTOMATIC TYPE)

- WILL NOT RESPOND TO TRAILER CHARGE VALVE
  - ◆ Defective valve. Repair or replace.
- SUPPLY LINE TO TRAILER WITH SLOW BLEED-DOWN DOES NOT SHUT OFF TRACTOR AIR AND VENT BETWEEN 45 P.S.I. AND 20 P.S.I.
  - ◆ Check trailer charge valve #23, as it should "pop" to let T.P. valve vent trailer supply. Repair or replace.
- LEAKS AT EXHAUST PORT OR TRACTOR SERVICE (BACK THROUGH HAND OR FOOT VALVE) OR TRAILER SUPPLY
  - ◆ Defective valve. Repair or replace.

17 QUICK RELEASE AND DOUBLE CHECK VALVE COMBINATION

- FOOT VALVE EXHAUST LEAK PARK BRAKES RELEASE YELLOW DASH CONTROL VALVE EXHAUST LEAK IN PARK POSITION AND SERVICE BRAKES APPLIED
  - ◆ Check anti-compound double check valve portion for feedback to foot or dash control valve. Repair or replace.

18 HAND CONTROL VALVE - TRAILER SERVICE BRAKES

- LEAKS AT EXHAUST PORT WHEN RELEASED AND FOOT VALVE IS APPLIED
  - ◆ Check #20. Replace if necessary.
- LEAKS AT EXHAUST PORT WHEN RELEASED AND TRAILER PARKING BRAKES ALSO RELEASED
  - ◆ Check #17 for internal backflow into service control line, or trailer air system for backflow into tractor service control line.
- LEAKS AT EXHAUST PORT WHEN RELEASED OR APPLIED AND ALL PARKING BRAKES IN PARKED POSITION
  - ◆ Hand control valve is defective. Repair or replace.

19 DOUBLE CHECK VALVE SEPARATES TRAILER HAND VALVE PRESSURE FROM REAR FOOT BRAKE PRESSURE FOR DELIVERY TO TRAILER

- FOOT VALVE EXHAUST PORT LEAKS WHEN HAND VALVE IS APPLIED
  - ◆ Replace.
- HAND VALVE EXHAUST PORT LEAKS WHEN FOOT VALVE IS APPLIED
  - ◆ Replace.

20 DOUBLE CHECK VALVE SEPARATES FRONT AXLE FOOT BRAKE PRESSURE FROM REAR AXLE FOOT BRAKE PRESSURE AND/OR TRAILER HAND VALVE PRESSURE FOR DELIVERY TO TRAILER

- LEAKS THROUGH FOOT VALVE EXHAUST WITH HAND VALVE APPLIED
  - ◆ Replace #20 or #21.
  - ◆ Periodic Test: Alternately loosen each inlet line and apply pressure to other. If leak is detected - replace.

COMPLAINT/REMEDY

21 STOP LIGHT SWITCH

- LEAKS
  - ◆ Replace.
- FAILS TO SIGNAL A GOOD BULB THROUGH SOUND WIRING AT 3-6 P.S.I.
  - ◆ Replace.

22 MANIFOLD DASH VALVE WITH BUILT-IN TWO-WAY CHECK (RED OCTAGON) TRAILER CHARGE (YELLOW DIAMOND) TRACTOR PARK

- PARK BRAKE WON'T RELEASE
  - ◆ Check for full system pressure delivery through valve.
- PARK BRAKE WON'T APPLY
  - ◆ Repair or replace, If it will not release pressure.
- LEAKS AT EXHAUST PORT IN PARK POSITION SERVICE BRAKES APPLIED
  - ◆ Check #18 anti-compound double check valve.
- LEAKS AT EXHAUST PORT IN PARK POSITION SERVICE BRAKES RELEASED
  - ◆ Repair or replace.
- WON'T APPLY TRAILER IMMEDIATELY WHEN "PULLED"
  - ◆ Replace, if it won't exhaust. Repair or replace #17 if #23 is functioning properly.
- REAR TANK BLEED-DOWN ALSO BLEEDS FRONT TANK OR VICE VERSA
  - ◆ Periodic Test: Pressure should remain in one tank after the other is drained. Replace, if inoperative.

23 AIR DRYER

- AIR LEAKING CONSTANTLY FROM PURGE VALVE
  - ◆ Purge valve seal damaged. Replace.
  - ◆ Purge valve frozen
  - ◆ Inspect heater (see heater problems).
- HEATER INOPERATIVE
  - ◆ Blown fuse. Check fuse and replace with 8 - 10 amp fuse.
  - ◆ Broken wires or poor connections. Repair or replace wiring to heater.
- SLOW WET TANK BUILD-UP
  - ◆ Filter and/or desiccant plugged. Service at air dryer.

24 ABS INLINE VALVES

- FOR COMPLETE TROUBLESHOOTING INFORMATION REFER TO LITERATURE PIECES MODAL POWER TK-2 INSTALLATION & SERVICE MANUAL (L30022) AND/OR ABS DIAGNOSTIC TROUBLESHOOTING GUIDE (L20293)

25 ABS SENSORS & EXCITER RINGS

- FOR COMPLETE TROUBLESHOOTING INFORMATION REFER TO LITERATURE PIECES MODAL POWER TK-2 INSTALLATION & SERVICE MANUAL (L30022) AND/OR ABS DIAGNOSTIC TROUBLESHOOTING GUIDE (L20293)

NOTE: FOR FURTHER TECHNICAL ASSISTANCE CONTACT YOUR HALDEX DISTRIBUTOR, YOUR LOCAL HALDEX SALES PROFESSIONAL, OR CALL (800) 643-2374 AND ASK FOR A TECHNICAL ADVISOR.

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